DOCUMENT RESUME

ED 131 955 PS 009 010

AUTHOR Hollomon, John W.; And Others
TITLE A Cross-Cultural Investigation of Language and Thought in Young Anglo-, Black-, and Mexican-American Children of Low Social Status Parents.
PUB DATE 76
NOTE 57p.

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS Bilingualism; Caucasian Students; *Concept Formation; *Cross Cultural Studies; *Cultural Factors; Elementary Education; *Ethnic Groups; *Language Development; Learning Processes; Literature Reviews; *Lower Class Students; Mexican Americans; Negro Youth; Question Answer Interviews
IDENTIFIERS Texas (San Antonio)

ABSTRACT

The purpose of this investigation was to make a cross-cultural study of the abilities of Anglo-, Black-, and Mexican-American young children of low status parents to process a given set of language and thought universals. The 27 subjects (nine subjects in each ethnic group) were divided into three subgroups according to age-grade levels, 5, 6, and 7 years old (K-2 grades). The instrument consisted of 33 information-eliciting question forms, including 39 questions arranged in an ascending order of difficulty. The interviewing technique was used to collect the data. A phrase structure analysis was made of the data to determine the extent to which the grammatical structures in the responses would reveal observable and quantifiable differences in abilities to process a given set of concepts. Combined results for each ethnic group indicated that, with a few exceptions, each had acquired the language and thought processes elicited, as these relate to classification, seriation, spatio-temporal relations, and causality. The overall conclusion was that the patterns of mental operations appear not to be adversely affected by ethnicity, whereas culture appears to affect levels of speech production across ethnic groups. (Author/MS)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED131955

A Cross-Cultural Investigation of Language and Thought in Young Anglo-, Black-, and Mexican-American Children of Low Social Status Parents

John W. Hollomon
Associate Professor
Early Childhood Education
Division of Education
The University of Texas at San Antonio

Yolanda Gonzalez
Teacher-Specialist
Bilingual Program
San Antonio Independent School District

Gladys Garcia
Language Learning Disabilities Teacher
San Antonio Independent School District

Karen Emrich
Early Childhood Teacher
San Antonio Independent School District

Mailing Address:
Dr. John W. Hollomon
Associate Professor
Division of Education
The University of Texas at San Antoni
San Antonio, Texas 78285

PS 009010

A Cross-Cultural Investigation of Language and Thought in Young Anglo-, Black-, and Mexican-American Children of Low Social Status Parents

Abstract

The purpose of this investigation was to make a cross-cultural study of the abilities of Anglo-, Black-, and Mexican-American young children of low status parents to process a given set of language and thought universals. The twenty-seven subjects (9 Ss per ethnic group) were divided into three subgroups according to age-grade levels, 5-7 years old, and K-2. The random sampling technique was used to select the Ss from three public elementary schools. The instrument consisted of 33 information-eliciting question forms, including 39 questions arranged in an ascending order of difficulty. The interviewing technique was used to collect the data. A phrase structure analysis was made of the data to determine the extent to which the grammatical structures in the responses would reveal observable and quantifiable differences in their abilities to process a given set of concepts. The combined results for each ethnic group indicated that, with a few exceptions, each had acquired the language and thought processes elicited, as these relate to classification, seriation, spatio-temporal relations, and causality. The overall conclusion was that the patterns of mental operations appear not to be adversely affected by ethnicity, whereas culture appears to affect levels of speech production across ethnic groups.

A Cross-Cultural Investigation of Language and Thought in Young Anglo-, Black-, and Mexican-American Children of Low Social Status Parents

1. Introduction

The child is black;
The child is brown;
The child is white;
Together they learn to read and write.

Their world is black;
Their world is brown;
Their world is white;
It turns by day and then by night.

Their cultures are unique;
In school they meet.
The children are meek;
Together they learn to think and speak. (bis)

If we disregard their color line,
And where they were born,
They'd get along together fine,
And would not by their prejudices be torn.

--John W. Hollomon, &
Yolanda Gonzalez

The reader need not to have internalized the melody of this paraphrastic song of the seventies ("Black and White," written by Earl Robinson and sung by Three Dog Night) to be aware of the message it conveys. As educators, we believe this message should enlighten not only those in our profession who repeatedly confuse language differences with deficiencies, but also those who fail to believe that there are language universals that seem to rest upon the developmental stages of the human mind. This is not to say that Juanita from Mexico, Charley from Harlem, or Susie from southeast Georgia are identical in their cognitive uses of language at any given stage of development. However, it does indicate that we should never lose sight of the fact that each child marches through learning to the beat of a different drum. In the process, the language and thought universals are acquired and developed to a more or lesser degree.

We should also be careful of placing all children in the melting pot, because what then begins to boil is the ethnic trap which educators are prone to fall into when there is no alternative--stereotyping. Whenever we classify any group of objects or people with a common word or phrase, we tend to minimize the differences between the members of that group (Johnson, 1970). Unfortunately, the classificatory lumping of children on the basis of language or dialect use frequently carries an erroneous assumption of the sharing of extensive cultural ties (Labov, 1970).

1.1 Context of the Problem

If we look even closer, we see that many research studies draw attention to this erroneous assumption. The focus of such studies has been

on the rate of language acquisition, the unit studied being the number of different words elicited from the young child in a standard setting (John, & Goldstein, 1963). Such studies have provided facts about the increase of the child's active vocabulary. Similarities in the quantitative features of overt behavior and the size of spoken vocabulary are assumed to be functionally equivalent for groups of children of differing backgrounds. Many of these studies, however, are limited to word counting and afford little insight into the relationship between social experience as it relates to language and thought. While some investigators may be aware that the content of speech is culturally determined, too often their writings have not reflected such an awareness and thereby provide little information that is useful to the classroom teacher.

The role of culture undoubtedly is an important factor in the emergence of conceptual thinking, as well as in the structuring of thought by the dialect or language accepted and used to codify and communicate the existing bonds within a given societal group. If that culture presents no demands for the formation of concepts and oral language development, makes no new demands on the children, and does not stimulate their mental operations, by providing a sequence of new goals, their thought and language fail to reach the highest stages, or reach them with delay (Vygotsky, 1962). Children's cultural environment can either speed up or slow down their cognitive development (Piaget, 1971; Fromm, 1968). Vygotsky insisted, however, that the cultural task per se does not explain the developmental mechanism itself that results in concept formation. Therefore, the problem of the investigator is to aim to understand the intrinsic bonds between external tasks

and the developmental dynamics, and to view concept formation as a function of the child's total social and cultural growth, which affects not only the content but also the method of his thinking.

The point is that children's languaging and thinking processes are not so different, but that we the educators are the ones that have prophesized these so-called "differences." Teachers often believe that the way they perceive children's language and their ability to think is reality in and of itself. This view is more explicitly stated by Rosenthal and Jacobson: "The self-fulfilling prophecy is how one person's expectations for another person's behavior can quite unwittingly become a more accurate prediction simply for its having been made" (Williams, 1970, p. 382). They further elaborate by saying that the self-fulfilling prophecy leads us to expect that the stereotypes associated with speech types in a situation would in turn become predictions of the types of behaviors and social attitudes manifested in that situation.

> In other words, in a situation, (1) speech types serve as social identifiers. (2) These elicit stereotypes held by ourselves and others (including ones of ourselves). (3) We tend to behave in accord with these stereotypes, and thus (4) translate our attitudes into a social reality (Williams, 1970, p. 383).

That is, we have a storehouse of stereotypes locked away in our brain cells and all we need is one encounter with an individual who matches our stereotypes--and once again we perpetuate the erroneous belief.

Maybe such a belief would not be such a calamity if teachers paid more attention to <u>what</u> children say--their meaning--than to <u>how</u> the children

say it (the grammaticality of their speech production). The belief would be even less tenable if teachers would accept the uses children make of their language--the intellectual content of the messages children convey and the emotional attitudes embodied in the contexts of the situations in which their messages are encoded--and if teachers would seek to give each aspect the requisite degree of emphasis and understanding each has for each child. Clearly, a cross-cultural investigation of language and thought processes in young children can provide new insights for teachers, who dare to teach communication skills to children whose culture and language expressions are not only at times different but also incongruent with those of the teachers.

1.2 Statement of the Problem

The purpose of this investigation was threefold: (1) to make a cross-cultural study of the abilities of Anglo-, Black-, and Mexican-American young children of low social status parents to handle a given set of language and thought universals; (2) to compare these abilities in order to determine ethnic influence, if any; and (3) to relate the findings to the social status of each of the three ethnic groups. The underlying objective was to glean a measure of the language and thought processes, which the children had already acquired, and to relate these to those required for academic success in school.

In order to avoid any ambiguity of the meanings of the messages we are conveying, our view of language and thought as treated in this investigation is in accordance with the one expressed by Corbin and Crosby (1965).

> Language is the primary vehicle for learning and for communicating ideas. On language

> more than anything else depends not only acquisition of knowledge and skill but also one's role in society, the scope of his influence in his own regional or social group and his mobility in the face of new opportunities (p. 17).

Whatever the ethnic group, however different the dialect, whatever the social conditions, whatever the age of the learners, the teacher of language faces a special problem. Why? Because the children are surrounded by an array of words, they sequentially and selectively acquire the structures of their language or dialect as well as the gestures and intonation patterns of those with whom they interact. The rate of this complex acquisition is proportional to the scope of the children's care (John, & Goldstein, 1963). But, what is happening in the schools is that many children are doomed by their first utterance. A statement uttered by a child such as "them magnets pickin' up the nails" does not indicate a lack of cognitive processes, but to many teachers it does. And this is caused by the fact that the emphasis is placed on the child's grammar.

To a large measure, how children use their language shapes their intellectual development as it relates to the ability to abstract from and conceptualize their environment, return to it, and interpret it. When language is viewed from the perspective of how it is used to structure thought, there is evidence to support the claim that dialect differences are not synonymous with language deficiencies, and that each social dialect has the same kind of complex and profound structures (Dillard, 1969; Stewart, 1969;

Labov, 1970; Haskins, 1976).

Thought, as used in this investigation, refers to the covert mental operations, which perceptually interact with each other to form concepts (symbolized mental images) of the objective data and social reality within the child's environment. Children's thought is manifested both by their capacity for inference and for reference. Besides, the combined language and thought abilities of children are manifested in their capacity to appropriately deal with at least three complex problems, including (a) the capacity to consciously attend to a convention; (b) the capacity to decode that convention, re-encode it, and verbally respond to it; and (c) the capacity to engage in the joint activity of conscious operational thinking, conceptualizing (symbolizing) and languaging.

Criteria used in studies to establish age-norms and developmental stages too often limit the conclusiveness of the results. While some investigators focus on vocabulary growth and the length of sentence types, others stress the use of subordinate clauses and the use of various parts of speech as criteria for linguistic maturity (Lawton, 1968). For who is to define a sentence, or to measure the length of responses for any given child, or to measure linguistic development by counting the proportions of modifiers, prepositions, connectives, pronouns? This is confounded by the fact that these proportions vary according to other factors as length of utterance, and also that at any given age, these proportions will vary according to the contexts of the situation in which a child is faced. It is a recognized fact that the size of a word or the length of a sentence does not necessarily correspond to the meaning of the message. Too much attention

has been paid to the type of grammar analysis used by adults, and too little attention has been paid to the developmental changes in conceptual thinking and the social drive that underlie the verbal expression.

1.3 Question

The specific question investigated was the extent to which the structures in the responses of the subjects, to a given set of information-eliciting questions, would reveal observable and quantifiable differences in their language and thought abilities to handle a given set of universal concepts, as these relate to their ethnic identities and social class status. Therefore, we made no attempt to assess how much language a subject knew, but rather to assess his ability to use language to structure his experience and thought, and to use his experience and thought as content for his oral language expression. However, after we discovered that the Mexican-American subjects produced less structures in their verbal responses than the other two ethnic groups, we conducted an ad hoc analysis, in order to provide additional support for our interpretations.

It was assumed that in spite of the fact that a concept is knowledge already acquired, this factor was minimized by structuring questions that evoked a level of experience that virtually all children of this age group, regardless of their social status and ethnic identity, had already acquired, at least at the lower levels. Carroll (1964) points out that because of the continuity of the physical, biological, and social environment in which human beings live, their concepts will show a high degree of similarity. Language makes possible the diffusion and sharing of concepts as classes of experience. People tend to have generally similar kinds of experience, at least within a

given culture.

Slobin (1972) reports on research in child development that demonstrates that children learn language the same way all around the world; that despite the diversity of tongues, there are linguistic universals that seem to rest upon the developmental universals of the human mind, and, that every normal child masters his particular native tongue, and learns basic principles in a universal order common to all children. However, we believe that in spite of the premise that linguistic representations may be quite constant across individuals in a given culture, the meanings of the messages will reflect the idiosyncrasies of individual experience.

On reviewing the research of Lesser and his colleagues, Cazden (1968) concluded:

> Probably the most important finding is that ethnic background and social class have different effects. Ethnic background affects the patterns of mental abilities, while social class status affects the level of scores across the mental ability scale (p. 415).

Lesser and his colleagues (1965) studied Jewish, Negro, Chinese and Puerto Rican children's verbal ability. Their findings indicate that apparently different mediators are associated with social-class and ethnic-group conditions. They further indicated that the importance of the mediators associated with ethnicity is to provide differential impacts upon the development of mental abilities, while the importance of mediators associated with social class is to provide persuasive (and not differential) effects upon various mental abilities. However, this study discounted the possible effects of bilingualism.

We, nevertheless, found it extremely difficult to equalize differences both between and within ethnic groups, the prior experiences of the subjects, and the effects of the classroom environmental differences. Consequently, we limited our investigation to finding a plausible answer to one researchable question. It was further limited to thirty-three information-eliciting question forms. In the process, we recognized that in any assessment procedure a child may have abilities for which there is no occasion to express them, and lack abilities for the occasions into which he is faced.

1.4 Importance of Investigation

It is important to note that a standardized instrument was not used in this investigation. We assumed that, in the assessment of language and thought processes in children from a cross-cultural perspective, true standards are found within each ethnic group, not outside of it; and that true standards free rather than restrict the child's language and thought processes. We therefore chose to use a modified version of an information-eliciting question instrument designed by the principal investigator to assess language and thought universals, as these were manifested in the structures of the responses uttered by the subjects. The underlying assumption was that language and thought demand an open mind, released from the control of other minds. Thus, we approached the investigation through a series of open-ended questions arranged in an ascending order of difficulty. Because no three ethnic groups are exactly alike, no three can be held to identical standards.

It is also important that we dealt with the language and thought processes of Anglo-, Black-, and Mexican-American children of low social

status parents. Most similar investigations have dealt with this problem making a comparative analysis of language and thought between lower socioeconomic status children and their middle class counterparts, in which the latter group is almost always found to be functioning at higher cognitive levels than the former. The overall result has been a disproportionate amount of placement of lower socioeconomic status children in special education classes of the language-learning disabilities types.

Mosley and Spicker (1975) point out that the ethnocentric ideal in the public schools is the Euro-American children from middle-class families, who possess the most socially acceptable traits, and who speak the regionally accepted variant of so-called standard American English. When properly assessed, many of the culturally and linguistically different children do not show evidence of low cognitive functioning, but rather low verbal production. Generally, educators have referred to them as being culturally and linguistically deprived, or socially disadvantaged. We prefer to describe children of low social status parents as being socioeconomically excluded from the best of two cultures--their own and the "culture" of the middle class.

Traditionally, the causes of the poor academic performance of these children in regular and special classes have been attributed to deficiencies within the children themselves or within their cultural or ethnic backgrounds. Viewed from this perspective, the limitation possessed by the racially or culturally different children of low social status parents is their inability to attend to a convention of speech, and verbally respond to it, in order to establish rapport with adults, initiate activities, explore the physical and interpersonal world, perceive and cognize in the same manner as middle

class Euro-American children. Although the language of socioeconomically excluded children and their learning behaviors may be considered inadequate, inappropriate, or unacceptable for academic achievement in school related tasks, they tend to be adequate and appropriate for their home environment. Therefore, the problems of many of these children are not due to pathological conditions but rather to linguistic and cultural differences. With these notions in mind, we conclude that it appears that the public schools often rely more on language production (surface structures) than on language uses and the thought (deep structures) embedded in the concepts and skills manifested in the surface structures of the language production of children of poverty.

Our task then was to use an unbiased instrumental technique to assess the language and thought processes of three different ethnic/cultural groups of young children. The question forms we used elicited universal language concepts and thought processes that rest on the development of the human mind. In this manner, our procedures were not biased in favor of one cultural group as opposed to the other.

2. Method

2.1 Design

The population of the study was defined as elementary school children of three ethnic/cultural groups of lower socioeconomic status parents. The sampling technique was that of randomization. The sample was drawn from kindergarten, first, and second-grade classes in three schools in the San Antonio area. The schools served the social-class and ethnic groups required by the design of the study.

The subjects were matched according to age, social class and ethnic

background. The ages ranged from 5 to 7 years, with a mean of 6 years. The sample was divided into three groups, Mexican-Americans, Black-Americans, and Anglo-Americans. Each group consisted of nine subjects, and each group was divided again into three subgroups according to age, five, six, and seven years. Two boys and one girl were in each subgroup. The total sample numbered twenty-seven subjects.

2.2 Instrumentation

The instrument employed was a modified version of the Information-Eliciting Question Instrument developed by the principal investigator. The content validity was based on several pilot studies and a formal study (Hollomon, Longoria-Whitney, & Cortez, 1975). The instrument consisted of 33 question forms, including 39 different questions to be answered arranged in an ascending order of difficulty. Each question was structured in such a manner as to appeal to the sensory modalities of the subjects, things they probably had perceived in their physical and social environment. In the process, an attempt was made to gradually assess their ability to verbally structure their experiences from the concrete to the abstract and from the simple to the complex (Appendix).

The wording of the questions begins at a relatively low level of difficulty and as the questioning progresses, the level of required mental operations becomes more complex, and the concepts and oral language skills elicited become more complicated and abstract. The question forms were standardized so that, even if an administrator had to rephrase a given question to elicit a response, the essential information-eliciting element remained constant.

2.3 Procedure

The subjects were randomly selected from class lists provided by the classroom teachers. The social class of the subjects was determined by the fact that the schools from which the subjects were selected had student enrollments of over 90% from low-income parents.

Each subject within each ethnic group was questioned individually by the same investigator. Three investigators administered the instrument. Each subject was questioned on the school premises in a private room. Only the investigator and the subject were present. A female Anglo-American teacher administered the questions to the Anglo-American subjects, who were enrolled in the same school where she taught. The questions were administered to the Black- and the Mexican-American subjects by two female Mexican-American teachers, neither of which worked in the two schools in which these subjects were enrolled.

No pretraining or tutoring was given to any subject. The responses of each subject were tape recorded, and subsequently transcribed by the investigator who administered the instrument. Thus, the subjects' essential task was to pay close attention and understand the questions, then to verbally respond to them based on their own experiences. The questioning sessions lasted over a period of two weeks, which were followed by the analysis of data.

2.4 Analysis of Data

A phrase structure analysis of the data collected was conducted. This approach allowed us to deal with the question of whether the structures in the responses of the subjects to the instrument would reveal a noticeable

difference in their language and thought abilities to handle universal concepts, as these relate to their ethnic identities and social class status. This approach provided us with something of the endless creative power of the subjects to language their experiences and thoughts. This approach also provided us with a sampling of the lexical units or information-loaded phrases over which the subjects had control. The phrase structure analysis served as an effective technique for determining how they used language to mediate the relationships between objects, events, and situations within their environment. It also provided a relatively clear basis for categorizing the covert mental operations, concepts and oral language skills, and the lexical units that behave similarly. In addition, we were able to use the phrase structures for purposes of comparing responses across ethnic groups and ages--to determine what differences existed in their ability to use language to structure their thought, verbalize concepts and thereby reveal their uses, express their will, and communicate these to others.

The phrase structures were analyzed and tabulated in accordance with five cognitively developmental paradigms. As conceptually arranged, these represent the language and thought processes considered to be necessary for a child to experience a measure of academic success (Thurstone, 1963; Weikart, Rogers, Adcock, & McClelland, 1971; Lillie, 1975). Although no effort was made to get a child to respond in complete sentences, some did. These sentence responses were tabulated with S as indicator.

3. Analyses and Results

The results of the data analyzed are shown in Tables 1-5. These Tables show the eliciting question forms, number of each question form asked, the covert mental operations evoked, the concepts and oral language skills revealed, the phrase structures in the responses, and the ethnic identities of the subjects responding to each question. The five developmental paradigms described in each of the five Tables are classification (relational/associational, descriptive, generic); serial ordering (sizes, qualities, quantities); spatial relations (places, actions, distance); temporal relations (ordering of events and actions, and beginning and ending of time intervals); and cause and effect relations (explanation of related points). Age-grade responses were tabulated in ascending order (K-2 or ages 5-7) under each ethnic group corresponding to each question asked.

Insert Tables 1-5 about here

The combined results for each ethnic group, including the three age-grade subgroups within each indicated that each had acquired an observable and a quantifiable measure of the language and thought processes elicited, except for the question relative to the size of shoes. It failed to elicit a response from one Black-American in each age-group, and from one kindergartener and one second grader in the Anglo-American group. One Mexican-American and one Black-American kindergartener and first grader, and one Anglo-American second grader experienced difficulty answering questions #22 and #23 referring to weight and size, respectively. One Anglo-American first grader and one Black-American second grader failed to respond to questions #28 and #31, which elicited the concepts of spatio-temporal relations between actions, people and places, and temporal relations between the beginning and ending of time intervals (linear measure of time), respectively.

Chart 1 indicates the totals of responses elicited in each developmental paradigm (Tables 1-5), in accordance with each ethnic group and age-group within ethnic groups. The responses were computed based upon the numbers of phrase structures and complete sentences given as responses to the entire instrument.

Insert Chart 1 about here

In looking at Chart 1, we find that only the concept of classification in Table 1 showed a noticeable range in the number of responses: 137 phrases and 28 sentences for the Mexican-American group, 239 phrases and 57 sentences for the Black-American group, and 251 phrases and 72 sentences for the Anglo-American group, respectively. The remaining tables showed no wide range in the number of responses between ethnic groups. However, we noted that the Mexican-American group was consistently lower than the other two groups in the number of responses elicited. This does not mean that they could not handle the covert mental operations or manifest the concepts and skills necessary to respond, but rather a given question either failed to elicit a response or elicited fewer responses.

Another interesting finding was the total comparison of the number of responses that were phrases and sentences among the ethnic groups. We found that the total number of sentences elicited were 95 for the Black-American group and 99 for the Anglo-American group, respectively. The Mexican-American group, however, responded with only 40 sentences. The total number of phrases (417) elicited from the Black-American group was somewhat less than those (428) elicited from the Anglo-American group. Again the Mexican-American group was much lower at 310 phrase responses. At first

we thought that this might have been due to the fact that English was their second language.

4. Discussion

The purpose of this investigation was to determine the extent to which the phrase structures, in the responses of the subjects to a given set of information-eliciting questions, would reveal an observable and quantifiable difference in their language and thought abilities to handle a given set of universal consepts, as these relate to their ethnic identities and social class status. Although the Mexican-American subjects tended to produce less language in response to certain questions than did the other two ethnic groups across age-grade levels, there was insufficient evidence to conclude that they were not able to handle the five universal concepts, even if with less language.

It was assumed that a subject possessed a particular concept if it were manifested in the structure of his or her oral response to a given question. It was also assumed that the children could handle certain mental operations if they could decode the information elicited in the question and recode it based upon their own experiences. The subjects' ability to do either, of course, depends upon the nature of their experiences and their capacities for inference and for reference. Therefore, the abstract idea of a thing, an object, a something, and the parallel idea of an action or activity, or something happening is of first importance to understanding the relationship between the language and thought processes in young children. The children's ability to decode a convention and translate what they already know into language depends on the way they perceived, recalled, or imagined

the event or object. They may recall a complex event in a different order from that which it was originally perceived. The children's mode of perception and level of abstraction in any situational context are indices of the event (Hebb, Lambert, & Tucker, 1973). Consequently, when the children identify, list or label objects, events or situations, the label becomes synonymous with the objective data and social reality; the label becomes the concept. The concept provides the child with a classificatory system by which the child can relate one experience to another.

Yet, there is sufficient evidence to indicate that speakers of two languages--especially young children--are deficient in either, when compared with monolingual speakers of either of their languages. Macnamara (1968) found evidence to support the claim that the linguistic and educational attainments of bilinguals are inferior to those of the monoglots; they tend to develop less well in both languages. He suggested four reasons for this: (1) linguistic interference from the first language, (2) cultural interference, (3) parental confusion in language, and that (4) it takes time to learn a language (Wilkinson, 1971, pp. 99-100.)

In Carrow's (1957) study, she examined the influence of bilingualism on oral language. She found monolinguals to possess larger vocabularies and to have fewer articulation errors. She concluded that bilingualism is detrimental to language mastery. Conclusions to the contrary have been made in investigations conducted by Peal and Lambert (1962) and Riley (1968). The results of the two latter studies indicated no negative relationships between the degree of bilingualism and verbal ability in either of the bilingual's two languages.

There appears to be little doubt that, generally, many Mexican-American children are socially and economically excluded from the best of two cultures. In health, wealth, and welfare, many are at or near the bottom of the scale when compared with their Anglo-American counterparts. These factors could well account, in part, for these subjects' low speech production. It could very well be that children whose resources are limited are also limited in their language expression. If children's resources are limited to the bare essentials, their language expression may also be limited to the mere essentials needed to convey their messages. Limited resources also limit social mobility. These factors could also account, in part, for the overall speech production of the Black-American group, which was slightly lower than that of its Anglo-American counterpart of similar social status parents.

We recognize that the number of phrases or sentences in response to a given question does not necessarily indicate overall ability to think and conceptualize objective data and social reality. However, it appears that children who make the greatest uses of their language can recognize more alternatives, create more options, make better selections among choices, and invent more solutions to problems.

4.1 Ad hoc Analysis

We agree with Hymes' (1972) premise that "There is no basis for assuming differences in fundamental linguistic ability or for imputing to inherited differences between ethnic, racial, or other groups" (p. xx). When we studied the language structures in the verbal output of the Mexican-American subjects, and compared them with those produced by the Black- and Anglo-American subjects, we found no significance variance in the com-

plexity of structures of the same kind. Certainly it would be scientifically absurd to describe the language production of the Mexican-American subjects as being "deprived," so far as the concern is for the presence of their capacity to use language to structure their thoughts, and to use their capacity to use language to structure their thoughts, and to use their thoughts to form the content of their language structures.

At first we thought that the Mexican-American subjects may indeed be "linguistically deprived" if their native competence in Spanish was not used in the schools; if they were not asked parallel eliciting questions in Spanish in order to reveal that competence; and if Spanish was used in the schools only as a second language rather than as a means of communicating their thoughts. Therefore, in order to make sure that we had not inadvertently and erroneously judged the productive language capacities of these subjects, we conducted an ad hoc analysis. And, in order to double-check the teachers' designation of these subjects as being English dominant, we translated the English questions into parallel Spanish questions, and administered these to each of these subjects.

First, we looked into the language arts programs of the classrooms in which the subjects were enrolled. We thought that, perhaps, English was not taught in a manner that builds on the subjects' already developed Spanish-speaking foundation. If this were true, then the subjects would find it difficult to learn English well. Hines and Hildebrand (1976) also made a point worthy of our consideration: "Chicano children are often erroneously considered by observers to be 'slow' or 'nonverbal' when, in fact, they are only reacting normally to strangers and to a different environment" (p. 29).

It is to be noted that the same investigator--a Mexican-American female--administered the questions to the subjects in both English and Spanish in an empty room other than the regular classroom setting. She was not their teacher. The Black children were also unfamiliar with their question administrator. The Anglo children were familiar with the question administrator, both in classroom and outside classroom situations.

Therefore, our procedural objective was to determine how the Mexican-American subjects used Spanish to structure their thoughts, and how they used their thoughts as content for their oral Spanish production. What we found was that the first and second grade subjects were only passive consumers of Spanish, as it was taught only as a second language, and not as a vehicle for learning subject-matter content.

The kindergarten subjects were exposed to no bilingual program, and no special language arts program was in use. The teacher's objectives served as the basis for the methods and materials employed in the classroom. The first and second grade subjects participated in a multimedia bilingual program, in which the media were the messages, which were conveyed mostly in English, as the teachers spoke very little Spanish.

The results of the data collected and analyzed from the administration of the parallel questions in Spanish revealed that none of the nine subjects could be considered either Spanish dominant or bilingual. However, the structures in the verbal responses that they did give to the questions asked in Spanish were the same as those given in response to the questions asked in English.

One kindergarten subject failed to respond to 13 questions; answered

18 in Spanish, 1 in English, and mixed one response. The second kindergarten subject failed to respond to 4 questions; answered 24 in English and 4 in Spanish. The third kindergarten subject failed to respons to 14 questions; answered 18 in English and 1 in Spanish. The three first-grade subjects failed to respond to 6, 27, and 32 questions, respectively; answered 1 in Spanish and 5 in English, 6 in English, and 1 in Spanish, respectively. The three second-grade subjects failed to respond to 12, 17, and 24 questions, respectively; answered 21 in English, 11 in English and 4 in Spanish, 6 in English and 3 in Spanish, respectively.

These results indicate that the Mexican-American subjects had a greater capacity for reference and for inference, when the questions were asked in English. When we looked again at the language production of these subjects to the eliciting questions in English, we concluded that the low number of structures in their responses did not appear to adversely affect their capacity to use language for reference and for inference--to think and verbalize their thoughts--based on their already acquired conceptual systems. That is, they decoded and verbally responded to almost all the questions asked.

4.2 Conclusions

Based upon the results of this investigation, as these relate to the threefold purpose, objective, and the question, the following conclusions have been extrapolated.

1. The questions were sufficiently open-ended to strongly evoke mental operations, concepts and oral language skills. They elicited simple information, greater accuracy of information supplied, greater rationality,

and greater awareness of relationships (Wilkinson, 1971). In this manner, we were able to observe the conceptual manifestations of oral language skills and infer the inner dynamics of the thought process as revealed in the verbal structures of the responses.

2. We investigated the already formed conceptual systems of the subjects through their verbal structuring of the content of five basic concepts: classification, seriation, spatial relations, temporal relations, and cause and effect relations. The results revealed the match or mismatch between the language and thought processes they had already acquired and those required for academic success on school related tasks. These results were based on an analysis of the verbal knowledge of ready-made language structures, which enabled us to infer the covert mental operations called into play from within as revealed in the concepts manifested and the oral language skills structured in the responses to the questions asked. In this manner, we were not only able to study the children's uses of their language, but to study their intellectual processes in the true sense as these relate to language and thought.

3. The results revealed: (a) specified mental operations that give birth to specified concepts, (b) the expression of these concepts by structuring them in words based upon the sensory material that the children had schematized in their physical and social environment, and (c) sensory experiences which are essential to thinking, concept formation, and receptive-expressive language development. With these components, we were able to study language and thought in young children of low social status parents jointly with the study of how the children use their language to structure

their thought and to conceptualize their knowledge.

4. We explored the relation of the concept to reality. In this heuristic process, as we analyzed the various phrase structures in the responses, we were able to shed some light on Vygotsky's (1962, p. 53) premise that the meaning of a given word is approached through another word. Therefore, what we discovered through this process was a record of the relationship in the children's minds between previously formed families of words and phrase structures. From these, we gleaned their underlying concepts. In other words, we discovered something of the young children's ability to decode the information elicited and to fit it into and interpret it in accordance with their existing conceptual systems. This required a type of mental operation which called for the extension and reorganization of that conceptual system in order to transform the elicited information into a verbal response based upon already existing language structures. This further required the children to consciously attend to a convention and re-cognize it. This joint activity was based on some common structures, functions, and properties of objects, events and situations that had already been conceptualized. The children made a series of verbal expressions of these referents by abstracting from them traits which were perceptually fused.

In our analysis we did not disregard the role played by the symbol (word or phrase structure) in the concepts manifested; nor did we simplify our analyses to the extent that there was not a perceptual fusion of the information elicited, including the mental operations, concepts and language skills revealed in the structures of the responses. This fusion was achieved by carefully structuring the questions and arranging them in an

ascending order of difficulty. The overall results revealed the relationship between how the children use their language to abstract from their environment, conceptualize it, structure it in language, and interpret it in terms of the mental operations the questions evoked. This was done by investigating the functional uses of the children's language. These uses are the products of the social demands the children's cultures have made on them. These demands, we believe, affect not only the content of their thought--their conceptualized experiences--but also the children's ability to structure and verbally express the content of the dynamics of their thought processes and their acquired system of organizing their concepts.

5. The proper structuring and sequencing of questions can evoke both the particular levels of mental operation and the conceptual levels elicited. For this age-group, information is more easily evoked by questions containing frequently used words, with a higher proportion of concrete referents--things that appeal to their sensory modalities--and a lower proportion of abstract referents. The effect of this questioning procedure is a direct derivative of the extent to which a question evoked the retrieval and processing of a particular set of referential associations.

6. A child was judged to have developed a particular concept in a given paradigm to the extent that he or she decoded the task structured by a certain question, reorganized it according to his or her existing conceptual system, and verbalized the information elicited. The verbalization, however, does not guarantee that a particular concept has been mastered at more complex levels. A child's mental operations triggered in a conceptual entity

may include all the operations that normatively define the concept. Yet, the paucity of meaningful experiences associated with the uses of the operations or the quality of the experiences can make it difficult for the child to establish useful associational linkages. Whether a concept is meaningful thus depends upon the experiential background of the child, and also the semantic structure of the concept within the question asked. Information is more easily retrieved, reorganized and fitted into the existing conceptual system, and verbalized when children have a clear understanding of what is specifically asked for in a question. This occurs when a question requires the children to relate the information elicited to information they have already acquired.

7. The patterns of mental operations appear not to be affected by ethnicity; whereas culture appears to affect levels of speech production across ethnic groups. Given the possibility that although the Anglo subjects were of low social status parents, they may well be privy to social contacts of higher status than the other two ethnic groups. We tend to believe that both the Black- and the Mexican-American subjects are culturally different and more socioeconomically excluded from the best of the middle class or mainstream society than their Anglo counterparts, and that this exclusion is reflected both in their capacity for reference and for inference.

8. Our results form no basis for assuming differences in fundamental language and thought abilities or for imputing to inherited differences between the ethnic groups studied. The patterns of speech of each group contained basic structures of the same kind with similar conceptual content and covert mental operations.

9. However, caution should be applied in the utilization of these results in any technique of assessing language and thought in young children in either of the three ethnic groups. In any assessment procedure such as this one, a child may have abilities for which there is no question asked to express them, and lack abilities for verbally structuring some of the information elicited. In addition, caution must be exercised in generalizing the results of the data collected and analyzed across the larger populations. Our objective was not to collect and analyze generalizable data, but rather to test a technique of using information-eliciting questions to evoke the covert mental operations, concepts, and skills--extant in the existing conceptual systems of the subjects--as manifested in the verbal structures of their responses. In spite of the premise that linguistic representations may be quite constant across individuals in a given culture, the meanings of the information elicited in the questions, and an individual child's responses to them, will reflect the idiosyncrasies of the peculiar experiences of that child.

5. Pedagogical Implications

The results of this investigation provide a description of the language and thought baselines of the subjects in each ethnic group. These baselines include aspects of which might serve as the focus of attention in language instructional programs for children of low social status parents. Since the primary purpose of oral language assessment would seem to be that of serving as input into instructional programs, the results are particularly useful for the individualization of language instruction.

According to Taba (1967), the questions can focus the children.

The questions set the stage for both the kind of mental operation to be performed and the content on which this operation is to be performed. In other words, the questions tell the children what they are to talk about (such as people, material things or objects, events and situations that encompass their interactions in their world--home, neighborhood and school). They also tell the children what they are to do with the content (whether they are to classify, seriate, point out spatio-temporal relations, or explain causal links).

Another pedagogical function is that of extending on the same level. For example, after children have responded to a certain question, it is important to encourage them to go beyond what has been given by asking them questions such as "What else is there?" "Who else do you play with?" "Where do you play?" "Why don't you play with _____?" In order to encourage all children to add their ideas in group situations, the teacher can seek additional information on already established levels of thought in order to elaborate and categorize information already provided. This will allow for objective inquiry into the unknown, further exploration into the known, and the application of knowledge and skills in real and simulated situations.

There is also a pedagogical function of making a transition from one level of thought to another, such as from generic classification to determining causal relations--analyzing, comparing, and explaining certain items in identified information. According to Taba, this is a method of changing the focus or lifting of thought to another level.

Therefore, the procedural objective is to help the children become active users of their language and thought, and not just passive consumers

of the language and thoughts of others. Sund (1974) points out that the way we ask questions and listen may reveal the extent to which our guidance is facilitating and discovery-oriented. The teacher can help the child establish a sturdy foundation for becoming a competent adult, with good mental health and positive self-concept, by providing opportunities for the child to learn his or her mind is capable of resolving problems. This learning can be facilitated by asking questions requiring children to use their minds and discover their talents. One way to insure this is to ask open-ended questions, information-eliciting questions. The emphasis, of course, is not so much on "right" or "wrong" answers as on discovering where the child is in his thinking.

Yonemura (1974) suggests that before starting a new experience with the children, the teacher may have a group discussion, during which all of the questioning skill that can be mustered is called into play, to find out what the children already know or don't know about what the teacher hopes they will learn. "During and following the learning experience, the teacher gathers feedback from the children, spontaneous and elicited responses, and modifies her (his) teaching accordingly" (p. 64). Through asking children information-eliciting questions, thinking is often revealed in their responses. Yonemura stresses the importance of interviewing children on a one-to-one basis, in order to learn what they know and where they are in their thinking. This can be accomplished by asking open-ended questions that offer the children more ways to express themselves and thereby to reveal their thinking.

The question forms in the Information-Eliciting Question Instrument can serve as models for further development. This or a similar instrument can be

administered to young children entering school early in the academic year. The results would allow the teacher to determine the match or mismatch between the language and thought processes required to experience a measure of success with school related tasks and those already acquired by the children at the time they enter school. The results would also aid in the proper planning and sequencing of learning experiences, including the establishing of criterion-referenced objectives and the arrangement of a learning-teaching situation that calls language forth and evokes reasoning processes. The Instrument as a whole or its subparts can again be administered intermittently during the school year to determine developmental progress, and again at the end of the year to determine the extent of conceptual and language development as related to instruction and learning.

We further suggest that in the learning-teaching situation, the teacher should seek first to ascertain the levels of mental operations, the oral language skills, and concepts the children have already acquired; seek next to discover which ones they are currently acquiring; then seek to develop the appropriate materials, methods and procedures that sustain their language and thought development. We also suggest that a structured language arts program--that stimulates the children, evokes from them what they already know and dignifies them as learners; leads them into objective inquiry; requires them to apply what they know in simulated and real-life situations--can do much to enhance their language production (Adkins, 1974).

We believe that the content of language is made up of activities in which children are allowed to make their own observations, to draw their own inferences based on their own references, sort objects into cognitive schemes

based on their own acquired conceptual systems or choosing, and share findings that they feel are important (Neuman, 1972). The observations, understandings, inferences, classifications--and the communication of these--are essentially the content of language development, the structure of the facts and the concepts that are the result of the thinking process. Activities for thinking and languaging could include the differentiation, enumeration and listing of similarities and differences among objects and within objects; attributes or features of definite and common properties of objects; determining cause and effect by relating points to each other, explaining items of observed and identified information, finding implications, making inferences or generalizations; classifying living and nonliving objects and analyzing their nature or situation; predicting consequences, explaining familiar phenomena, hypothesizing, determining causal links leading to predictions; explaining, and supporting the predictions; using logical principles or factual knowledge to determine necessary and sufficient conditions in order to verify predictions (Taba, 1967).

A structured approach does not mean that the children should be exposed to lock-step lessons where all are expected to perform exactly the same tasks, making the same observations, and drawing the same conclusions. This is the antithesis of what we can or should expect of children who are learning to conceptualize their experiences and thoughts and to communicate these in language. The objective should not be to teach the children language per se, but rather how to use language to express the concepts they already have, and the concepts they are learning--to logically rectify the linguistic geography of the language and thought processes they have already

mastered. To encourage children to engage in thinking experiences is to offer them language referents which serve as signifiers. The signifiers become signified through the covert mental operations specified and the concepts identified in this study. These highly complex psychological processes are the bases for both language and thought development. After children readily engage in thinking activities, they are usually eager to talk, to communicate their thoughts. Therefore, when children are learning language, they need to be constantly exposed to thinking experiences lest their language become rigid and void of meaning, estranged from experience.

These implications are not to be taken to mean that children need sensory stimulation per se. According to Arnheim (Petersen, 1972), the children already have enough of that in their daily lives. To bombard them with lights, sounds, smells, and slide shows will only confuse them, or numb them. What children need is perceptual challenge, something that mobilizes the mind through the senses. Children have to be taught how to respond to images that are of some use to them and how to create such images for themselves. As teachers become more skillful in their ability to interact with the ongoing learning experiences of children, the teachers become better able to evolve similar learning experiences in each of the curricular areas. Though the activities are vastly different, the learning processes are basically the same. For example, the five basic concepts and the covert mental operations required to manifest them can be learned and taught equally effectively in math, the social sciences, or in the language arts.

Therefore, the teacher should, as a natural course of interacting with children, verbally supply functors, provide labels, articulate behaviors,

explicate experiences, elaborate relationships, extend knowledge beyond the children's perceptual fields; point out salient attributes, structures, and functions of objects, events and situations; and use a variety of sentence patterns. In addition, the teacher should respond to children in interesting, caring, and listening ways--ways that tell the children that the teacher hears what they say and wants to hear more. Of course, this manner of responding to children challenges the teacher's curiosity, imagination, creativity, and question-asking skills. The teacher needs to know how to ask questions that require the activation of mental operations, particularly those that match the developmental level of the child. In addition, the materials that the children know thoroughly enough to manipulate are the ones the teacher should utilize for their thinking and languaging activities (Hollomon, 1976).

6. Summary Statement

In summary, we have investigated how young children use their thoughts as content for their language and how they use their language to structure their thoughts. Thinking and languaging combined allow the child to look at the world and interpret experience; to analyze features of tasks, objects, events and situations; to perceive properties of concrete objects and social reality; to conceptualize data; to think about and mediate experience; to internalize data for later recall, retrieval, and feedback; and to explain causal links. Although the number of processes--and the various activities used to activate them--differ from subject-matter area to subject-matter area, they usually include: (a) observing--obtaining information by any of the sensory modalities; (b) describing--communicating information;

(c) investigating and manipulating--handling concrete objects to observe all their properties, examining them for similarities and differences, arranging them to form patterns, making predictions based on experience and testing these predictions; (d) organizing and quantifying--classifying according to properties, serial ordering of objects and events, measuring, working with numbers, using space/time relations, and cause and effect relations; and (e) generalizing--finding common properties and drawing inferences or conclusions from these properties (Berkheimer, 1974).

We have stressed that an effective method for helping children develop logical concepts is to provide many opportunities in various and variegated situational contexts for children to act upon and interact with their concrete and social environment. We have dealt with five universal concepts applicable to both thought and language development during early childhood. Therefore, if our research findings and implications are correct, then teachers have to spend considerable time planning and providing many opportunities for thinking and languaging. And, if the findings and implications serve as catalysts for teachers to rethink the potential of a thinking-languaging program for helping children develop meaningful and purposive concepts and skills, and, if this investigation sparks some additional research related to the particulars, then the basic objectives for conducting this study will have been achieved.

References

Adkins, W. R. Life coping skills: A fifth curriculum. Teachers College Record, 1974, 75(4), 507-526.

Berkheimer, G. D. Learning to learn through science. Early Years, 1974, 5(2), 83, 86-87, & 89.

Carroll, J. B. Words, meanings and concepts. Harvard Educational Review, 1964, 34(2), 178-202.

Carrow, M. A. Linguistic functioning of bilingual and monolingual children. Journal of Speech and Hearing Disorders, 1957, 22: 371-380.

Cazden, C. B. Subcultural differences in child language: An inter-disciplinary review. In J. L. Frost (Ed.), Early childhood education rediscovered: Readings. New York: Holt, Rinehart and Winston, Inc., 1968, pp. 408-445.

Corbin, R., & Crosby, M. Language programs for the disadvantaged. Champaign, Ill.: National Council of Teachers of English, 1965.

Dillard, J. L. How to tell the bandits from the good guys, or what dialect to teach? In A. C. Aarons, B. Y. Gordon, & W. A. Stewart (Eds.), Linguistic-cultural differences and American education (Special anthology issue of The Florida Reporter), 1969, pp. 84-85, & 162.

Fromm, E. The revolution of hope: Toward a humanized technology. New York: Bantam Books, 1968.

Haskins, J. More on black English. Teacher, 1976, 93(8), 29-32.

Hebb, D. O., Lambert, W. E., & Tucker, G. R. A DMZ in the language war. Psychology Today, 1973, 6(11), 54-58, 60, & 62.

Hines, R. P., & Hildebrand, V. Working with Spanish-speaking children. Day Care and Early Education, 1976, 3(3), 28-29.

Hollomon, J. W. Verses from the child's garden. Early Years, 1976, 6(9), 28-30.

Hollomon, J. W., Longoria-Whitney, I., & Cortez, C. Eliciting covert mental operations, skills and concepts in bilingual young children. A research report presented at the NAEYC Annual Conference in Dallas, Texas on November 13, 1975.

Hymes, D. Introduction. In C. B. Cazden, V. P. John, & D. Hymes (Eds.), Functions of language in the classroom. New York: Teachers College Press, Teachers College, Columbia University, 1972, pp. xi-lvii.

John, V. P., & Goldstein, L. S. The social context of language acquisition. Merrill-Palmer Quarterly, 1964, 10: 265-275.

Johnson, K. R. Blacks. In T. D. Horn (Ed.), Readings for the disadvantaged. New York: Harcourt, Brace & World, Inc., 1970, pp. 29-41.

Johnson, R. E. Meaning in complex learning. Review of Educational Research, 1975, 45(3), 425-459.

Labov, W. The logic of non-standard English. In F. Williams (Ed.), Language and poverty: Perspectives on a theme. Chicago: Markham Publishing Company, 1970, pp. 153-189.

Lawton, D. Social class, language and education. New York: Schoken Books, Inc., 1968.

Lesser, G. S., Fifer, G., & Clark. D. H. Mental abilities of children in different social and cultural groups. Monograph of Social Research and Child Development, 1965, 30(4), (Serial No. 102).

Lillie, D. L. Early childhood education: An individualized approach to developmental instruction. Chicago: Science Research Associates, Inc., 1975.

Macnamara, J. Bilingualism and primary education: A study of the Irish experience. Edinburgh: Edinburgh University Press, 1966.

Mosley, W. J., & Spicker, H. H. Mainstreaming the educationally deprived. Theory Into Practice, 1975, 14(2). 73-81.

Neuman, D. Sciencing for young children. In K. R. Baker (Ed.), Ideas that work with young children. Washington, D. C.: National Association for the Education of Young Children, 1972, pp. 215-226.

Peal, E., & Lambert, W. E. The relation of bilingualism to intelligence. Psychological Monographs, 1962, 76(27), 1-23, (No. 546).

Petersen, J. R. Eyes have they, but they see not: A conversation with Rudolf Arnheim. Psychology Today, 1972, 6(1), 55-58, 92, 94, & 96.

Piaget, J. Science of education and the psychology of the child. D. Coltman (Trans.). New York: The Viking Press, 1971.

Riley, J. E. The influence of bilingualism on tested verbal ability in Spanish and English: Final report. Washington, D. C.: U. S. Department of HEW, Office of Education, Bureau of Research, 1968.

Slobin, D. I. Children and language: They learn the same way all around the world. Psychology Today, 1972, 6(2), 71-74, & 82.

Stewart, W. A. Urban Negro speech: Sociolinguistic factors affecting English teaching. In A. C. Aarons, B. Y. Gordon, & W. A. Stewart (Eds.), Linguistic-cultural differences and American education (Special anthology issue of The Florida Reporter), 1969, pp. 50-53, & 166.

Sund, R. B. Growing through sensitive listening and questioning. Childhood Education, 1974, 51(2), 68-71.

Taba, H. Teaching strategies for cognitive growth. In J. R. Verduin (Ed.), Conceptual models in teacher education: An approach to teaching and learning. Washington, D. C.: The American Association of Colleges for Teacher Education, 1967, pp. 16-26.

Thurstone, T. G. Primary mental abilities test K-1. Chicago: Science Research Associates, 1963.

Vygotsky, L. S. Thought and language. E. Hanfmann, & G. Vakar (Trans.). Cambridge, Mass.: M.I.T. Press, 1962.

Weikart, D. P., Rogers, L., Adcock, C., & McClelland, D. The cognitively oriented curriculum. Washington, D. C.: National Association for the Education of Young Children, 1971.

Wilkinson, A. The foundations of language: Talking and reading in young children. London: Oxford University Press, 1971.

Williams, F. Language, attitude, and social change. In F. Williams (Ed.), Language and Poverty. Chicago: Markham Publishing Company, 1970, pp. 380-399.

Yonemura, M. Learning what children know. Childhood Education, 1974, 51(2), 64-67.

TABLE 1: CLASSIFICATION PARADIGM NO. OF PHRASE STRUCTURES IN RESPONSES OF SUBJECTS

ELICITING-QUESTION FORM	NO. ASKED	COVERT MENTAL OPERATION	CONCEPT/SKILL	MEXICAN-AMERICANS	BLACK-AMERICANS	ANGLO-AMERICANS
1. WHAT + BE	1	DISCRIMINATION DIFFERENTIATION MEMORY/RECALL	GENERIC CLASSIFICATION OF OBJECTS AND PEOPLE IDENTIFY/LABEL/LIST.	3 NP 4 NP 3 NP	6 NP/1S 22 NP/4S 21 NP	19 NP 11 NP/9S 31 NP
2. WHAT + DO + ADVP	1	DIFFERENTIATION MEMORY/RECAL	GENERIC CLASSIFICATION OF ACTION: LABEL/LIST.	2 S/1VP 3 VP 5 VP	2 S/1VP 7 S/3VP 5 VP	4 VP/5S 1 VP/2S 2 VP/6S
3. WHAT + DO + V	1	PERCEPTION DISCRIMINATION	GENERIC CLASSIFICATION OF OBJECTS AND PEOPLE: IDENTIFY/ LABEL/LIST.	3 NP 3 NP 5 NP	6 NP 17 NP 12 NP	16 NP/1S 14 N/1S 22 NP
4. WHO + BE		RECOGNITION RECALL	RELATIONAL CLASSIFICATION OF PEOPLE: IDENTIFY/LABEL/LIST.	2 NP/2S 4 NP/1S 4 NP/2S	8 NP 12 NP 16 NP/1S	12 NP/1S 7 NP/2S 21 NP
5. WHO + BE + REL + V	1	RECOGNITION RECALL	RELATIONAL CLASSIFICATION OF PEOPLE: IDENTIFY/LABEL/LIST.	5 NP 6 NP 2 NP/2S	8 NP 8 NP 11 NP/1S	6 NP 3 NP/1S 4 NP/1S
6. WHAT + DO + V + WITH	1	RECOGNITION RECALL	RELATIONAL CALSSIFICATION OF ACTION: IDENTIFY/LABEL/ LIST/LOCATE.	4 S 5 VP 3 VP/1S	1 VP/2S 4 VP/1S/1NP 3 VP	5 VP/4S 7 VP/4S 4 VP/3S
7. WHOSE	1	RECOGNITION RECALL	ASSOCIATIONAL CLASSIFICATION OF PEOPLE AND PLACES: IDENTIFY/LABEL/LOCATE/ POSSESSION.	4 NP 7 NP 1 NP/2 PRON P	1 PRON P/2S 2 PRON P/1 NP 1 PRON P/2 NP	5 NP/1S 5 NP/1S 6 NP

KEY: NP= NOUN PHRASE; VP = VERB PHRASE: S = SENTENCE (NP + VP): PRO P = PRONOUN PHRASE; COMP = COMPLIMENT: REL = RELATOR; ADJP = ADJECTIVE PHRASE: ADVP = ADVERB PHRASE

TABLE 1: CLASSIFICATION PARADIGM (CONT.)

ELICITING - QUESTION FORM	NO. ASKED	COVERT MENTAL OPERATION	CONCEPT/SKILL	NO. OF PHRASE STRUCTURES IN RESPONSES OF SUBJECTS: MEXICAN-AMERICANS	BLACK-AMERICANS	ANGLO-AMERICANS
8. WHAT KIND	1	DISCRIMINATION ASSOCIATION COMPARISON, SELECTION	DESCRIPTIVE CLASSIFICATION OF EVENTS AND SITUATIONS: IDENTIFY/LABEL/LIST.	5 NP 6 NP 5 NP	7 NP 11 NP 8 Np/1S	8 NP/1S 3 S 9 NP
9. WHAT COLOR	1	DIFFERENTIATION RECOGNITION	DESCRIPTIVE CLASSIFICATION OF COLOR: IDENTIFY/LABEL.	3 ADJP 5 ADJP 4 ADJP	3 ADJP 4 S/3 ADJP 1 S/2 ADJP	4 ADJP 6 ADJP 7 ADJP
10. WHAT + CAN + TELL ABOUT	3	RECOGNITION EXTAPOLATION	DESCRIPTIVE CLASSIFICATION OF ATTRIBUTES: LABEL/LIST.	3 S 3 S/1VP 4 S	4 ADJP 12 S/2NP 5 S/2VP/1ADJP	1 ADJP/4S 8 S 11 S
11. WHAT SHAPE	1	DIFFERENTIATION COMPARISON	DESCRIPTIVE CLASSIFICATION OF SHAPE AND STRUCTURE: IDENTIFY/LABEL/LIST.	3 ADJP 3 ADJP 3 ADJP	3 ADJP 1 S/2 ADJP 3 ADJP	3 ADJP 3 ADJP/1S 3 ADJP
12. HOW + BE	1	PERCEPTION	DESCRIPTIVE CLASSIFICATION MANNER CONDITION OR CHARACTERISTIC: LABEL.	3 ADJP 3 ADJP 3 ADJP	1 S/1 ADJP 2 S/1 ADJP 2 ADJP/2S	2 ADVP/6S 3 ADVP 3 ADVP
13. HOW + DO (PAST) + COME	1	INFORMATION RETRIEVAL	DESCRIPTIVE CLASSIFICATION OF METHOD: LABEL/EXPLANATION.	2 ADVP/1S 1 ADVP/2S 3 ADVP	2 ADVP/1S 2 S/1 ADVP 2 ADVP/2S	1 ADVP/2S 5 ADVP 1 ADVP/3S
14. HOW + DO + FEEL	1	INFORMATION RETRIEVAL	DESCRIPTIVE CLASSIFICATION OF CHARACTERISTIC MANNER TOUCH: LABEL/LIST.	3 ADJP 3 ADJP 3 ADJP	1 ADVP/2S/2ADJP 2 ADJP/1 ADVP 3 ADVP/2S	3 ADJP/1S 2 ADJP/1S 3 ADJP

TABLE 2: SERIAL ORDERING PARADIGM

ELICITING - QUESTION FORM	NO. ASKED	COVERT MENTAL OPERATION	CONCEPT/SKILL	NO. OF PHRASE STRUCTURES IN RESPONSES OF SUBJECTS: MEXICAN-AMERICANS	BLACK-AMERICANS	ANGLO-AMERICANS
15. WHAT SIZE	2	DIFFERENTIATION COMPARISON	SERIAL ORDERING OF SIZE LABEL/LIST.	2 PRON P/1ADJP 2 PRON P/1S 4 PRON P	2 ADJP 2 ADJP 2 ADJP	1 PRON P/1S 3 PRON P 1 PRON P
16. WHICH + BE	1	DIFFERENTIATION COMPARISON	SERIAL ORDERING OF RELATIVE SIZE: LABEL	3 NP 3 NP 3 NP	3 NP 3 NP 3 NP	3 NP 3 NP 3 NP
17. WHICH + LIKE	2	DIFFERENTIATION COMPARISON SELECTION	SERIAL ORDERING OF QUANTITIES: LABEL/LIST.	3 NP 5 NP 6 NP	7 NP 16 NP 6 NP	4 NP 2 NP/1S 5 NP
18. HOW + MANY + BE	1	RECOGNITION/RECALL GROUPING	SERIAL ORDERING OF QUANTITIES: LABEL/LIST.	3 NP 7 NP 3 NP	5 NP/2S 2 NP/3S 3 NP/3S	3 NP/1S 2 NP/1S 3 NP
19. HOW + MANY + DO + V	1	GROUPING	SERIAL ORDERING OF QUANTITIES: LABEL/LIST.	3 NP/1S 3 NP 3 NP	1 NP/3S 4 S 4 NP/3S	5 NP 5 NP/1S 5 NP/1S
20. HOW + MUCH + DO + V	1	DIFFERENTIATION GROUPING	SERIAL ORDERING OF QUANTITIES: LABEL/LIST.	2 PRON P 2 NP/1S 2 PRON P/1NP	1 PRON P/1 NP/2S 3 NP 6 NP/1 PRON P	4 NP/1S 3 NP/1S 4 NP
21. HOW MUCH + CAN	1	RECOGNITION DIFFERENTIATION GROUPING	SERIAL ORDERING OF QUANTITIES: LABEL/LIST.	3 PRON P 1 NP/2 ADJP 1 PRON P/2 ADJP	1 PRON P/1 ADJP 2 PRON P/1 ADJP 2 ADJP/1 NP	3 ADJP 3 ADJP 3 ADJP
22. HOW MUCH + WEIGHT	1	COMPARISON EVALUATION	SERIAL ORDERING OF WEIGHT LABEL.	2 PRON P 1 ADJP/1 PRON P/1S 3 PRON P	1 PRON P/1NP 1 PRON P/1 ADJP 2 ADJP/1 NP	2 PRON P/1S 2 PRON P 3 PRON P
23. HOW BIG + BE	1	DIFFERENTIATION COMPARISON	SERIAL ORDERING OF SIZES LABEL/EXPLANATION.	3 ADJP 4 ADJP 1 ADJP/1 NP/1S	1 PRON P/1ADJP/2S 2 ADJP/1 NP 2 ADJP/1S	3 ADJP/1S 3 ADJP 2 ADJP

TABLE 3: SPATIAL RELATIONS PARADIGM — NO. OF PHRASE STRUCTURES IN RESPONSES OS SUBJECTS

ELICITING - QUESTION FORM	NO. ASKED	COVERT MENTAL OPERATION	CONCEPT/SKILL	MEXICAN-AMERICANS	BLACK-AMERICANS	ANGLO-AMERICANS
24. WHERE + BE	1	DIFFERENTIATION RECOGNITION RECALL	SPATIAL RELATIONS BETWEEN PEOPLE AND PLACES: LABEL/EXPLANATION.	3 ADVP 1 ADVP/2S 2 ADVP/1S	3 ADVP 3 ADVP 3 ADVP	3 ADVP 2 ADVP/2S 3 ADVP
25. WHERE + DO + V	1	DIFFERENTIATION RECOGNITION RECALL	SPATIAL RELATIONS BETWEEN PEOPLE, ACTIONS, PLACES: LABEL/LIST.	3 ADVP 4 ADVP 3 ADVP	3 ADVP 1 S/2 ADVP 1 S/1 NP/2 ADVP	4 ADVP 5 ADVP/1S 3 ADVP/1S
26. HOW FAR + V + FROM	1	ABSTRACTING PROBLEM-SOLVING	SPATIAL RELATIONS-DISTANCE BETWEEN PLACES: LABEL/DIRECTION.	3 ADVP 3 ADVP 2 ADVP/1S	3 ADVP/1ADJP/2S 3 ADVP 3 ADVP/1S	1 NP/2S 4 NP 3 NP

TABLE 4: TEMPORAL RELATIONS PARADIGM — NO. OF PHRASE STRUCTURES IN RESPONSES OF SUBJECTS

ELICITING - QUESTION FORM	NO. ASKED	COVERT MENTAL OPERATION	CONCEPT/SKILL	MEXICAN-AMERICANS	BLACK-AMERICANS	ANGLO-AMERICANS
27. WHICH + COME	1	DIFFERENTIATION COMPARISON SELECTION	TEMPORAL ORDERING OF EVENTS: LABEL/LIST.	3 ADVP 3 ADVP 3 ADVP	3 ADVP 3 S/2 ADVP 2 ADVP	3 ADVP 3 ADVP 3 ADVP
28. WHEN + DO + GO	1	DIFFERENTIATION RECOGNITION RECALL	TEMPORAL ORDERING OF EVENTS: LABEL/LIST.	3 ADVP 2 ADVP/1S 3 ADVP	3 ADVP 4 ADVP 4 ADVP/1S	4 ADVP 2 ADVP 4 ADVP
29. WHAT + DO + WHEN + V	1	RECOGNITION MEMORY/RECALL	SPATIO-TEMPORAL RELATIONS BETWEEN ACTIONS, PEOPLE, PLACES: LABEL/LIST.	1 VP/2S 3 VP 3 VP	2 S/1 VP 1 S/2 VP 3 VP	1 VP/3S 4 VP/3S 2 VP/2S
30. HOW OFTEN + DO + V	2	GENERALIZATION INFERRING	TEMPORAL ORDERING OF EVENTS AND TIME FREQUENCY: LABEL/LIST.	2 ADVP/1 NP 2 ADVP/1 ADJP 5 ADVP	3 ADVP 2 ADVP/1 PRON P 2 ADVP/2S	4 ADVP 6 ADVP 4 ADVP/1S
31. HOW LONG + V + ADVP	1	ABSTRACTION PROBLEM-SOLVING	TEMPORAL RELATIONS BETWEEN BEGINNING AND ENDING OF TIME INTERVALS-LINEAR MEASURE OF TIME: LABEL/EXPLANATION.	3 ADVP 3 ADVP 2 ADVP/1S	3 ADVP 3 ADVP 1 PRON P/1 NP	3 ADVP/1S 3 ADVP 2 ADVP/1S

TABLE 5: CAUSE AND EFFECT RELATIONS PARADIGM NO. OF PHRASE STRUCTURES IN RESPONSES OF SUBJECTS

ELICITING – QUESTION FORM	NO. ASKED	COVERT MENTAL OPERATION	CONCEPT/SKILL	MEXICAN-AMERICANS	BLACK-AMERICANS	ANGLO-AMERICANS
32. WHY + DO + GO	1	DIFFERENTIATION REASONING ANALYZING INFORMATION/ RETRIEVAL	CAUSE AND EFFECT RELATIONSHIP: IDENTIFY/LABEL/LIST/EXPLANATION.	3 NP 3 NP/1S 3 NP	3 NP 3 NP/1 ADVP 3 NP	3 COMP 3 COMP 3 COMP
33. WHY + DO + V	2	DIFFERENTIATION COMPARISON ABSTRACTION REASONING INFORMATIONAL RETRIEVAL	CAUSE AND EFFECT RELATIONSHIP: IDENTIFY/LABEL/LIST/EXPLANATION OF RELATED POINTS.	3 NP 3 NP 2 NP/1 COMP	3 NP 1 S/2 NP 3 NP/2S	3 COMP 3 COMP 3 COMP

Chart 1

Total Responses Elicited

Ethnic Identity in Each Paradigm

	Mexican American	Black American	Anglo American
Classification			
	37 P 13 S	52 P 10 S	89 P 26 S
	54 P 6 S	91 P 34 S	67 P 22 S
	46 P 9 S	96 P 13 S	95 P 24 S
Subtotals	137 P 28 S	239 P 57 S	251 P 72 S
Seriation			
	27 P 1 S	27 P 9 S	28 P 5 S
	31 P 3 S	34 P 7 S	26 P 4 S
	30 P 1 S	32 P 7 S	29 P 1 S
Subtotals	88 P 5 S	93 P 23 S	83 P 10 S
Spatial Relations			
	9 P 0 S	10 P 2 S	8 P 2 S
	8 P 2 S	8 P 1 S	11 P 3 S
	7 P 2 S	9 P 2 S	9 P 1 S
Subtotals	24 P 4 S	27 P 5 S	28 P 6 S
Temporal Relations			
	13 P 0 S	13 P 2 S	15 P 4 S
	14 P 1 S	14 P 4 S	18 P 4 S
	16 P 1 S	13 P 3 S	15 P 3 S
Subtotals	43 P 2 S	40 P 9 S	48 P 11 S
Cause and Effect Relations			
	6 P 0 S	6 P 0 S	6 P 0 S
	6 P 1 S	6 P 1 S	6 P 0 S
	6 P 0 S	6 P 0 S	6 P 0 S
Subtotals	18 P 1 S	18 P 1 S	18 P 0 S
Totals	310 P 40 S	417 P 95 S	428 P 99 S

APPENDIX A

INFORMATION - ELICITING QUESTIONS

Classification

1. What is in your house?
2. What do you do in your house?
3. What do you eat at home?
4. Who are your friends?
5. Who are the children you play with?
6. What do you do with your friends?
7. Whose bed do you sleep in?
8. What kind of food do you like?
9. What color is your shirt?
10. What can you tell me about this ball?
    What can you tell me about this pencil?
    What can you tell me about your teacher?
11. What shape is a ball?
12. How is your mother?
13. How did you come to school?
14. How does rain feel?

Seriation

15. What size are your shoes?
    What size is your bed?
16. Which is bigger, a dog or a horse?
17. Which TV programs do you like best?
    Which toys do you like best?
18. How many are in your family?

19. How many sisters do you have?

20. How much money do you have?

21. How much water can you drink?

22. How much do you weight?

23. How big is your house?

Spatial Relations

24. Where is your mother?

25. Where do you eat?

26. How far do you live from school?

Temporal Relations

27. Which do you put on first, your shoe or your sock?

28. When do you go to the store?

29. What do you do when you go to the store?

30. How often do you brush your teeth?

    How often do you wash your hair?

31. How long does it take you to get to school?

Cause and Effect Relations

32. Why do you go to bed?

33. Why do you eat?

    Why do you sleep?